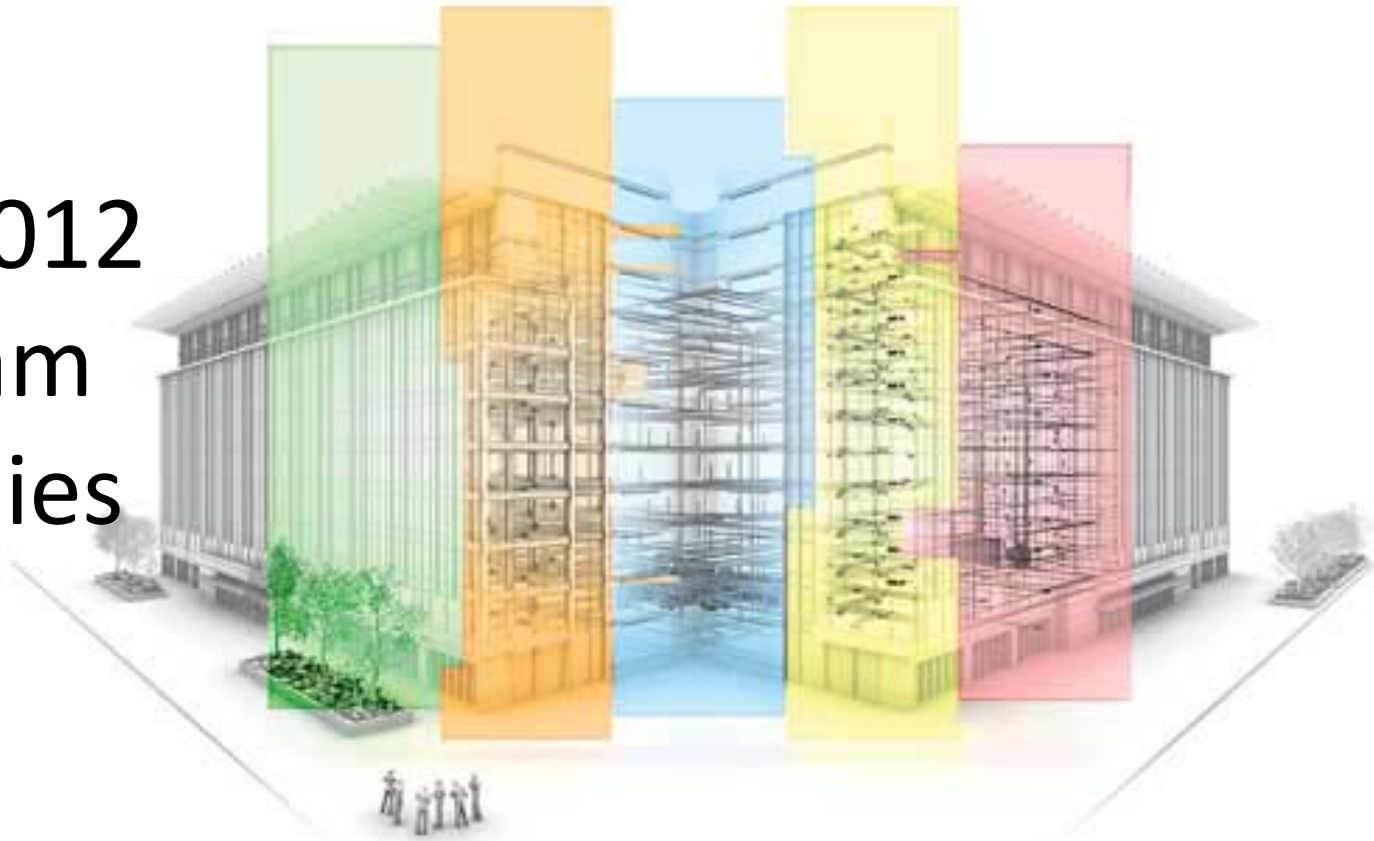


# 2011/2012 Program of Studies



Design YOUR Own Future

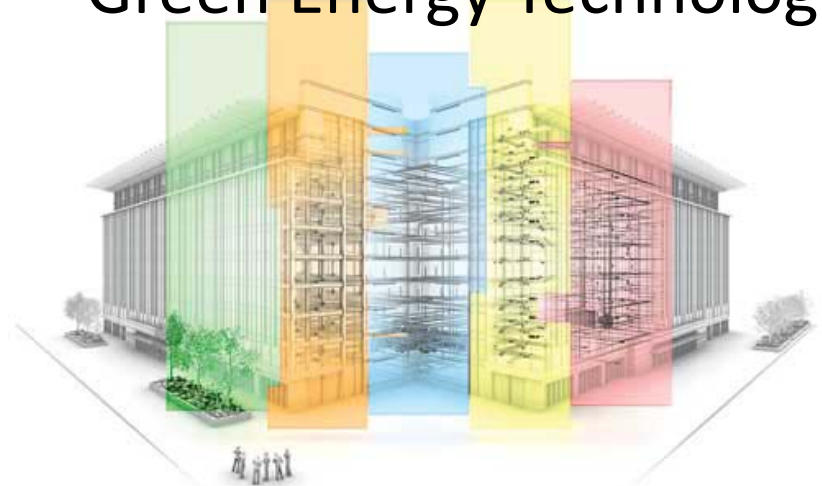
# New Programs

# New Opportunities

Geospatial Technology (GoogleEarth)



Green Energy Design  
Green Energy Technology



# Program Cluster in Technology



**Proposed New Course**



## CATEC COURSES

### Geospatial Technology GoogleEarth 8423/8424

10<sup>th</sup> -12<sup>th</sup> Grade AM

**JMU Dual Credit**  
**Great Connection with Building Trades, Green Energy Design & Entrepreneurship**

#### Future Career Opportunities

- Geographic Info Sys Tech
- Data Modeler
- Engineering Mgr
- Geoscientist
- Logistics Analyst
- Urban, Regional Planner



#### About the program...

#### Geospatial Tech (GoogleEarth)

The Geospatial Technology program provides experiences pertaining to the study of geographic information systems (GIS), global positioning systems (GPS), remote sensing (RS), digital image processing simulator (DIPS), Geodesy, automated cartography (Auto-Carto), land surveying (LS), and navigation. Fundamentally, these technologies allow students to explore and analyze the natural and human-made world, from local to global and beyond. Students will use various tools, processes, and techniques to create, store, access, manipulate, and revise data to solve human challenges. These experiences will employ real-world spatial analysis models and guidelines for integrating, interpreting, analyzing, and synthesizing data, with a focus on both the implications and the limitations of such technologies. These experiences also include the interfacing to telecommunications and automated database management systems.

#### Possible Business Partners

- DOD
- Army Corp of Engineers
- Local Architects
- Local Land Surveyors
- VDOT
- Nature Conservancy
- Rivanna Solid Waste Authority



# Program Cluster in Architecture & Construction, STEM, & Manufacturing

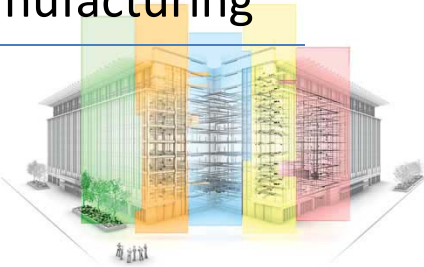


**Proposed New Course**



## Green Energy Design-1<sup>st</sup> Semester Green Energy Technology-2<sup>nd</sup> Semester

Offered PM only, grades 10-12



**About the program...**

**GREEN Energy Design**

Students will combine the understanding of sustainable design with state of the art “green” practices in construction through energy efficient materials and processes. Students will work on design software that incorporates many LEED and components allowing them to better understand sustainable construction. Students will use what they design for hands-on construction projects many of which will be connected with the student-built house at CATEC.

The second part of the semester will focus on the understanding of energy systems in residential homes with Energy Auditing programs. Students will understand basics of home energy upgrades and residential weatherization practices. Students will be trained on equipment used for energy efficiency monitoring. Students will be able to check for leaks and drafts, evaluate insulation, water, heating & lighting levels & efficiencies, & evaluate consumer & commercial appliances.

**About the program...**

**GREEN Energy Technology**

Students will get a broad overview of Alternative and Renewable Energy methods in the areas of solar energy, wind, biodiesel, hydroelectricity, and hydrogen fuel cells. Students will work with renewable energy modules to combine science, technology, engineering and mathematic principles with hands-on student projects using wind energy, solar power and fuel cells, among other resources.

Students will be able to apply their understanding of these principles into areas such as the construction, architecture and automotive industries. Students will utilize student-built house to better understand how to incorporate alternative sources of energy such as photovoltaic solar power.

**New Courses**

**Future Career Opportunities**

- GreenSTEM jobs
- Technicians
- Installers
- Engineers
- System Designers
- Urban Planners
- Scientists
- Architects
- Builders
- Energy Auditors

**Connection to local businesses for authentic school-work experiences.**

# Overview of CATEC Career Programs

*The Charlottesville-Albemarle Technical Education Center (CATEC) operates with a very special purpose in mind: to provide high school students an opportunity to explore career choices and prepare in program areas that provide portable, transferable skills, for post-secondary training and employment.*

**VISION:** *We are the school of excellence and choice for students, staff, and businesses.*

**MISSION:** *Our mission is to develop workforce skills and careers.*

**CATEC focuses on providing portable, transferable skills to all of or students in the areas of:**

- 1) Technical Skills;**
- 2) Workplace (soft) Skills;**
- 3) Literacy Development;**
- 4) Innovative Technology Training;**
- 5) Entrepreneurship Training.**

Students may be admitted to the center if they meet the following criteria:

- *Attend Albemarle County or Charlottesville City Schools;*
- *Attend Fluvanna High School or neighboring high schools (admitted on space available basis);*
- *Have parental permission;*
- *Make application through their school guidance counselors and meet requirements for admission;*
- *Pay tuition if they are adults and space is available in the class.*

<u>Career Cluster</u>	<u>Course Offerings</u>	<u>Page</u>
<b>General Information</b>		2
<b>Core Academics</b>	English	3
<b>Program Clusters</b>	Art, AV, Technology & Communications	4
	Health Sciences	5-6
	Hospitality & Tourism	7
	Human Services	8
	Law, Public Safety, Corrections & Security	9
	Architecture & Construction	10
	Transportation, Distribution & Logistics	11
<b>Supplies and Fees</b>		12
<b>Application</b>		13

## Application & Selection Process

Students wanting to enroll in CATEC programs must complete an Application for Enrollment, available through their home high school guidance office. Students return completed applications to their guidance counselors who will forward the applications to CATEC.

Since class sizes at CATEC are limited, CATEC will review the applications and select students based upon the following:

- I. Applicants will be considered for the programs provided they meet any listed prerequisites.
- II. CATEC will review the following information on applicants: attendance, disciplinary record, grades, grade level, age and personal interview, if applicable. Final selection for each program will then be based upon a variety of factors, including the above information, the number of enrollments from each school, total enrollments from each school division, and maximum class sizes.
- III. Current CATEC students wishing to return to complete their program, or desire to enter a new program, should obtain a grade level of “C” or higher.
- IV. Juniors & Seniors are given priority in all programs, with Sophomores being accepted on a case by case basis in the following: Building Trades, Masonry, Culinary Arts, Intro to Culinary Arts and Auto Body.

### Program Completer/Certificate/Seal Options

All credit(s) for CATEC programs meet the requirement as a practical arts elective(s).

Students who finish any state approved one or two-year sequence of technical courses and earn a high school diploma will constitute a “program completer.”

Program completers receive a **Career and Technical Education Certificate of Completion** (based upon program requirements). Students earn a **Career and Technical Education Seal** if they: (a) achieve a B average in a sequence of courses; or (b) pass an examination that confers certification from a recognized industry, trade, or professional association; or (c) acquire a professional license in the field from the Commonwealth of Virginia. Students will receive a **Certificate of Participation** upon completion of a one-year program or one year of a two-year program (based upon program/certificate requirements), or complete a two-year program and do not earn a high school diploma.

### Verified Credits

Career and technical students may earn two verified credits toward a Standard Diploma by completing a program sequence and passing an approved certification or licensure examination. One of these may be substituted for a verified credit in either science or history and the other used as a student-selected verified credit.

### Technical Education Organizations for Students

Student participation in SkillsUSA or Health Occupations Student Association (HOSA) is an integral part of instruction in all of CATEC’s programs. These organizations provide opportunities for students to develop personal leadership and communication skills and motivates them to excel in their chosen fields of study.

### Skill Focus

While there are many technical “hard” skills taught in our programs at CATEC, an increased portion of our instruction is geared towards **workplace readiness skills**, known as “soft” skills. These skills are incorporated into the curriculum for each trade area, and are implemented school-wide in lessons to better prepare students for the workplace environment. In addition to the workplace skills, we incorporate **literacy**, **entrepreneurship** and **technology skills** into the trade areas to better prepare students with portable, transferable skills once they have completed their program of study.



## English Courses

**Note:** All English courses meet SOL requirements. The classes below can be taken in conjunction with any A.M. or P.M. CATEC program. Students who take English will receive 1 English credit and 2 elective credits in their technical course.

### English 10 (a.m. only)

**Credits:** 1 English credit      **Level:** Academic/Advanced      **Prerequisites:** English 9

### English 11 (a.m. & p.m.)

**Credits:** 1 English credit      **Level:** Academic/Advanced      **Prerequisites:** English 9, English 10

### English 12 (a.m. & p.m.)

**Credits:** 1 English credit      **Level:** Academic/Advanced      **Prerequisites:** English 9, English 10, English 11

## Exploratory

Students take English 10 Academic/Advanced and explore possible career options by rotating through different labs (nine weeks per lab, 4 labs per year). Class is open to rising 10<sup>th</sup> graders.

### 10<sup>th</sup> Grade Exploratory (a.m.)

**Grade:** 10      **Credits:** English 10 Academic/Advanced      1 English Credit  
Trade Exploratory      2 Elective Credits



# Program Cluster in Arts, AV, Technology & Communications

## CATEC COURSES

### Music Industry Technology – 9071/9072



#### High School Options

Design Multimedia & Web Tech  
 AHS, MHS

Fashion Design  
 AHS, CHS, MHS

Graphic Communications  
 AHS

TV Production  
 WAHS, MHS, CHS

Intro to Fashion Design & Marketing  
 CHS

Interior Design & Housing  
 MHS

Digital Imaging Tech I & II  
 MHS

Basic & Commercial Photography  
 CHS

Video & Media Technology  
 CHS

PM only / 2 credits

#### About the program...

Working in conjunction with the *Music Resource Center*, this one-year program is designed to provide in-depth instruction on music industry elements such as composition, recording systems, mixing and processing techniques, and live sound. Students will also be exposed to musical theory, computer use, and instrument understanding and function. Projects will include recording of instruments and arranging recording tracks on an album, including, but not limited to, the arrangement of multiple microphones, use of synthesizers, applying compression and equalization, and amplifying sound. Students will incorporate advertising and marketing aspects into these projects and study the possible careers available in the field.

#### Future Career Opportunities

- Music Producer
- Live-Sound Engineer
- Audio Engineer
- Radio Program Engineer

Students enrolled in this program will not be able to take English at CATEC.  
 Prerequisite: Open to Juniors & Seniors with priority going to 12<sup>th</sup> graders.

# Program Cluster in Health Sciences

## High School Options

Early Childhood Development  
**AHS**

Health & Medical Sciences I & II  
**AHS, MHS, CHS**

Life Management I & II  
**AHS, MHS**

Sports Medicine (Intro)  
**MHS**

Intro to Early Childhood  
 Development  
**CHS**

Sports Medicine I & II  
**CHS**

### Future Career Opportunities

- Certified Nurse Aide
- Home Health Assistant
- Dental Assistant
- Dental Lab Tech
- Dental Office Manager
- Patient Care Assistant



AM & PM

## CATEC COURSES

**Nursing Assistant -8360/8362**

**Dental Assistant – 8328/8329**



PM only

### About the program...

#### NURSING ASSISTANT

This program is fast-paced and begins with a discussion of nursing theory and the study of science. Once students have the theory completed they learn to care for others in the lab and clinical setting. In the clinical setting students will learn to care for patients independently and as a part of a team environment. Students will learn how their knowledge base, work ethics, documentation, and critical thinking skills assist in the proper care and management of another person. Students will leave the program prepared to work in nursing homes, hospitals and home environments. Upon successful completion of this one-year program students will sit for the State Board Exam for Nurse Aide. Once students pass this exam, they will be Certified Nurse Aides for the state of Virginia.

Due to licensing requirements, Nurse Aide students cannot take English at CATEC

### About the program...

#### DENTAL ASSISTANT

This one-year program prepares students to perform all the tasks of a Dental Assistant. These tasks include exposing, processing, and mounting x-rays, preparing materials for various procedures, including impressions, placing topical anesthetics, and making diagnostic study models for alginate impressions. Dental Assistant students also study maintenance of patient records, sterilization and disinfectant of instruments and equipment, preparation of patients for dental treatment, arrangement of dental instruments, materials, and medications on chair side trays, use of oral evaluation system, and oral hygiene instructions for patients. This program will give students a foundation to pursue an Infection Control and Radiation Health and Safety Certificate or a Dental Hygienist post-secondary degree through a two or four-year college.

Prerequisite: Recommended C or better in Biology

# Program Cluster in Health Sciences

## High School Options

Early Childhood Development  
**AHS**

Health & Medical Sciences I & II  
**AHS, MHS, CHS**

Life Management I & II  
**AHS, MHS**

Sports Medicine (Intro)  
**MHS**

Intro to Early Childhood  
 Development  
**CHS**

Sports Medicine I & II  
**CHS**

### Future Career Opportunities

- Pharmacy Technician
- Pharmacy Assistant
- Emergency Triage
- Industry Clinics
- Private & Hospital Transport
- Paramedic



AM only

## CATEC COURSES

Pharmacy Technician – 8305/8306

EMT – 8334S



### About the program...

#### PHARMACY TECHNICIAN

This one-year program will prepare students to perform all the tasks of a Pharmacy Technician. These tasks include assisting the licensed pharmacist with serving patients, and ordering, stocking, and packaging prescription and over-the-counter medications. Students will study Pharmacology to learn about the top 200 drugs, what they are and how they work. Pharmacy Tech students also study safety procedures, medication and inventory control, maintaining records, preparing labels, and processing insurance claims. This program can prepare you to successfully complete the Certified Pharmacy Technician (CPhT) examination.

Prerequisite: Recommended C or better in  
 Biology

### About the program...

#### EMERGENCY MEDICAL TECHNICIANS

EMTs are one of the three public safety divisions (EMS, Fire and Law Enforcement). Their job includes the daily routine of dealing with crisis, trauma, hazardous materials, illness, injuries, and the training to handle mass causality situations, disaster management, and terrorism awareness. The work they do often means the difference between life and death. Although the job can be stressful, EMT's and Paramedics enjoy the challenge and excitement of the job and view it as an opportunity to make a real difference.

The Virginia Office of Emergency Medical Services has prerequisites for EMS training. For the complete list, contact the instructor.

Due to class requirements, EMT/FF students cannot take English at CATEC.

Prerequisite: Must be 16 on or before the start of school



# Program Cluster in Hospitality & Tourism

## High School Options

- International Foods  
**AHS, MHS**
- Culinary Arts (Intro)  
**MHS**
- Nutrition & Wellness  
**CHS**
- Hospitality, Tourism & Recreation  
**CHS**

## Future Career Opportunities

- Prep Cook
- Short Order Cook
- Line Cook
- Chef
- Restaurant Manager



## CATEC COURSES

### Intro to Culinary Arts - 8250 Culinary Arts I & II – 8521/8522

AM only

**About the program...**  
**INTRODUCTION TO CULINARY ARTS**  
 This one-year program is designed to introduce students to career options in the food service industry as well as to provide instruction in culinary techniques. This entry-level course provides an overview of the culinary industry and career options through work-study placement. Class time is used for teaching new concepts, reinforcing important skills, and assisting Culinary Arts II students with catering activities. Students who are successful in this class may have the option to take Culinary Arts I the following year.

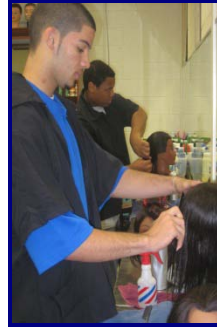
Due to class requirements, Intro to Culinary students cannot take English at CATEC.

AM & PM

**About the program...**  
**CULINARY ARTS**  
 Culinary Arts, a two-year program builds the proper foundation and perfects the skills needed to succeed in the food service industry. Be part of a team that emphasizes passion, attitude, character and team work in a disciplined and creative environment. Our emphasis on learning is academic, hands-on, and community based. Culinary Arts prepares students to enter employment in food service occupations. Instruction focuses on sanitation, nutrition, food preparation, catering, purchasing, and inventory control in addition to food presentation and service. Students plan menus, prepare food, and use a variety of kitchen equipment such as ovens, grills, broilers, slicers, grinders, and blenders.

# Program Cluster in Human Services

## High School Options

PM Only



AM or PM

## CATEC COURSES

**Barbering I & II – 8740/8741**  
**Cosmetology I & II – 8527/8528**

### About the program...

#### BARBERING

Students in this two-year program are prepared to take the Virginia Barber examination in order to become licensed practitioners. Students gain daily practical experience working on other students and manikins. During the second year, students have the opportunity to provide services to patrons in a clinical setting. Students also have the opportunity to do internships in local Barbershops. Barbering students study: professional ethics, safety and health, hair analysis, hair and scalp diseases/disorders, hair cutting and shaping, anatomy and physiology, chemical restructuring, coloring and lightening.

### About the program...

#### COSMETOLOGY

Students in this two-year program are eligible to take their State Board examination after successfully completing the two-year course. Students will gain theory and practical knowledge through instruction and lab participation. First-year students will participate in a job shadowing program and second-year students during their second semester will participate in an internship two days a week. Cosmetology students study: professional ethics, safety and health, hair analysis, hair and scalp diseases/disorders, hair cutting and shaping, anatomy and physiology, chemical restructuring, coloring and lightening, and nail/skin care procedures.

### Future Career Opportunities

- Licensed Barber/Cosmetologist
- Barber Shop Owner/Manager
- Color Specialist
- Hair Stylist
- Beauty Salon Owner
- Make-up Artist
- Beauty Salon Manager

Prerequisite: Recommended successful completion of Biology, Chemistry or Anatomy.

# Program Cluster in Law, Public Safety, Corrections & Security

## CATEC COURSES

### EMT/Firefighting – 8334S/8705S

#### High School Options



AM only



#### Future Career Opportunities

- Private and Hospital based transport services
- Industry Clinics
- Hospital Emergency Triage
- Private Fire Contractors
- City, State & Federal Fire Fighter
- Paramedic

#### About the program...

##### EMERGENCY MEDICAL TECHNICIANS

EMTs are one of the three public safety divisions (EMS, Fire and Law Enforcement). Their job includes the daily routine of dealing with crisis, trauma, hazardous materials, illness, injuries, and the training to handle mass causality situations, disaster management, and terrorism awareness. The work they do often means the difference between life and death. Although the job can be stressful, EMT's and Paramedics enjoy the challenge and excitement of the job and view it as an opportunity to make a real difference.

Virginia Office of Emergency Medical Services has prerequisites for EMS training. For the complete list, contact the instructor.

#### About the program...

##### FIREFIGHTING

Firefighters are one of the three public safety divisions (EMS, Fire & Law Enforcement). Firefighter I introduces students to the exciting career field of Firefighting. Students will learn both the theoretical concepts and practical application of fire suppression, fire science management, fire prevention techniques, arson investigation, and the mitigation of hazardous material accidents. Firefighting is a physically demanding profession and students will be introduced to this aspect through a physical training program. Local fire departments will work with the students in this indoctrination program, which will require field trips after school hours.

All activities will be conducted with great care and supervised closely by qualified personnel. These policies are designed to ensure adequate levels of safety while allowing for flexibility to utilize independent judgment based on the level of training. Any student who jeopardizes the safety of others will be removed from the program. Dress must be appropriate for the environment and training requirements.

Due to class requirements, EMT/FF students cannot take English at CATEC.

Prerequisite: Must be 16 on or before start of school.

# Program Cluster in Architecture & Construction

## High School Options

Architectural Drawing AHS, CHS, MHS, WAHS
Engineering Drawing AHS, CHS, MHS, WAHS
Mechanical Drawing/CAD CHS
Technology Foundations CHS
Technology Transfer CHS
Construction Technology MHS
Materials & Processes MHS, WAHS
Technical Drawing AHS, CHS, MHS, WAHS
GIS WAHS



AM Only

## CATEC COURSES

**Building Trades I & II – 8515/8516**

**Masonry I & II– 8512/8513**



AM & PM

### About the program...

#### MASONRY

Students in this two-year program will work with brick, concrete, glass block, tiles, terra cotta, and stone. Work can be as simple as laying a wall, or as complex as building a fireplace. The work is very physical, involving the use of hand tools, power tools, and other materials. Brick and block are laid by hand, requiring the skill of a craftsman. Students will learn to read blueprints, understand building codes, and be knowledgeable of industry safety requirements and guidelines for handling hazardous materials.

#### Future Career Opportunities

- Carpenter
- Architect
- Construction Laborer
- General Contractor
- Mason and Mason Contractor
- Project Manager and Estimator

### About the program...

#### BUILDING TRADES

This two-year program will teach you all the basic skills of: carpentry, residential wiring, residential plumbing, and masonry. The safe use of hand and power tools will be emphasized with more emphasis on power equipment. Blueprint reading and drawing are introduced at the beginning of the course. The latter part of the course will focus on carpentry, from framing to the finishing trim, and roofing. Plumbing is introduced as it relates to the other trades during the year; for example, drain waste, and vent work are taught as it relates to bathroom and kitchen plumbing. Residential wiring emphasizes the basics of wiring a house and the National Electrical Code. All aspects of residential construction, from project planning, purchasing material, to code compliance are taught. You will also build a house. Emphasis will be placed on proper employability skills and attitude throughout both years of the course.

Students accepted into Masonry or Building Trades are required to take the Compass Test and will earn college credit at PVCC upon successful completion of course.

# Program Cluster in Transportation, Distribution & Logistics

AM & PM

## CATEC COURSES

**Auto Body I & II– 8679/8680**  
**Auto Tech I & II – 8506/8507**

AM & PM

High School Options




### About the program...

#### AUTO BODY TECHNOLOGY

Students in this program are prepared for careers in this field through the use of the latest technologies and state of the art equipment. Throughout the program students gain knowledge of classroom and shop experience by working on vehicles. Each student will become familiar with the latest finishes, from single-stage to multi-stage finishes. Areas of study include: structural analysis and damage repair – fixed glass, non-structural analysis and damage repair, plastics and adhesives, painting and refinishing, estimating damage analysis, mechanical and electrical components. Selected students may be eligible for work experiences at local repair facilities.

### About the program...

#### AUTO SERVICE TECHNOLOGY

Automotive Service Technology is a two-year program for students who wish to become entry-level automotive technicians. The program is dual enrolled with J. Sargeant Reynolds Community College and articulated with Universal Technical Institute. This program is industry certified through NATEF and AYES. Automotive manufacturers and local dealerships sponsor the Automotive Youth Educational System (AYES) Program at CATEC. This program offers internship opportunities with dealerships for students who qualify and are selected during the spring semester of the first year. It includes the study of engine repair, engine performance, electrical/electronics, HVAC, brakes, Virginia state inspection, steering and suspension. The program is designed to provide an in-depth study of the automobile and its operating systems. In the classroom students will study automotive theory and put the theory into practical use in the auto shop. The program prepares graduates to pursue the Virginia State Inspector's License and gives students the opportunity to participate in the AYES initiative.

### Future Career Opportunities

- Auto Body Repair & Restoration
- Refinishing Specialist
- Claims Adjuster
- Detailer
- Auto Service Technician
- Service Advisor
- Parts Manager
- Automotive Sales Person

Prerequisite: Recommended successful completion of Algebra I. Students accepted in the program are required to take the Compass Test and will earn college credit at JSRCC upon successful completion of course.